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| <p>(21) International Application Number: PCT/US98/05265</p> <p>(22) International Filing Date: 18 March 1998 (18.03.98)</p> <p>(30) Priority Data:</p> <table border="0"> <tr> <td>60/040,518</td> <td>18 March 1997 (18.03.97)</td> <td>US</td> </tr> <tr> <td>60/041,876</td> <td>11 April 1997 (11.04.97)</td> <td>US</td> </tr> <tr> <td>60/069,581</td> <td>12 December 1998 (12.12.98)</td> <td>US</td> </tr> </table> <p>(71) Applicant (for all designated States except US): PURDUE RESEARCH FOUNDATION [US/US]; Office of Technology Transfer, Room 328 ENAD, Purdue University, West Lafayette, IN 47907 (US).</p> <p>(72) Inventors; and</p> <p>(73) Inventors/Applicants (for US only): SCHLEPPENBACH, David, A. [US/US]; 1720 Arrowhead Drive, West Lafayette, IN 47906 (US). LAU, Wunji [US/US]; 1200 Happy Hollow Road #204, West Lafayette, IN 47906 (US). SAID, Joe, P. [CA/US]; 435 Chauncey, West Lafayette, IN 47906 (US).</p> <p>(74) Agents: DANILUCK, John, V. et al.; Woodard, Emhardt, Naughton, Moriarty & McNett, Bank One Center/Tower, Suite 3700, 111 Monument Circle, Indianapolis, IN 46204 (US).</p> | | 60/040,518 | 18 March 1997 (18.03.97) | US | 60/041,876 | 11 April 1997 (11.04.97) | US | 60/069,581 | 12 December 1998 (12.12.98) | US | <p>(81) Designated States: DE, ES, US, European patent (AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE).</p> <p>Published Without international search report and to be republished upon receipt of that report.</p> |
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| <p>(54) Title: APPARATUS AND METHODS FOR A SHAPE MEMORY SPRING ACTUATOR AND DISPLAY</p> <p>(57) Abstract</p> <p>Various apparatus and methods for an actuator and display using one or more shape memory springs. A shape memory spring is heated and urges a pin to a first or extended position. The pin may be supported in the first position by a supporting mechanism. The shape memory spring is heated electrically, and in some embodiments under the control of a processor. The present invention may be used to display information provided in a user interface from a computer program, including text, numerical data, and graphical images.</p> | | | | | | | | | | | |